Notes.

We have received from a correspondent in India a letter which states that the present director of the Indian Institute of Science at Bangalore, Sir Alfred Bourne, is to be succeeded by an administrator with no scientific experience. Such an appointment would be greatly deprecated by scientific workers, and we trust it is not too late to prevent it. In our view the head of such an institution should be a man who combines scientific experience with administrative ability; and if this principle is deliberately ignored in the case of the directorship of the leading scientific institution in India, the strongest protest should be made to the authorities responsible for the appointment.

When Mr. B. B. Woodward retired from the British Museum (Natural History) last June he was still occupied with the proofs of the supplement to his well-known catalogue of the natural history library. Naturalists will be glad to learn that his services have now been temporarily retained for the completion of this valuable work.

We learn from the *British Medical Journal* for August 28 that the fifth Congress of Physical Therapy, instituted by the Belgian societies of physical therapy and radiology and the Antwerp Association for Physical Therapy, will be held at Antwerp on September 11 and 12; also that the nineteenth Flemish Congress of Medicine and Natural Science will be held at Ghent on September 18 and 19.

The thirty-first annual general meeting of the Institution of Mining Engineers will be held at Manchester on September 15–17, under the presidency of Col. W. C. Blackett. The institution medal for the year 1919–20 will be presented to Dr. John Bell Simpson, and the following papers will be presented: The Normal Occurrence of Carbon Monoxide in Coal-mines, J. Ivon Graham; The Better Utilisation of Coking Slack, A. E. Beet and A. E. Findley; Richard Trevithick: His Life and Inventions, J. Harvey Trevithick; The Froth Flotation Processes as Applied to the Treatment of Coal, Ernest Bury; and An Improved Method of Determining the Relative Directions of Two Reference Lines or Bases for Mining Surveys, T. Lindsay Galloway.

Early last year a Speleological Society was founded in the University of Bristol, and a record of its activities has now been published in the first part of its Proceedings. The society is fortunate in being within easy reach of the Mendip Hills, where so many important caves have already been explored, and it has been able to obtain special facilities for field-work. It has also been favoured with a course of lectures by several leading authorities on prehistoric archæology. In his presidential address Prof. E. Fawcett describes some human skulls found by the society in a cave, associated with Late Palæolithic flint implements and remains of red deer, wild cat, and brown bear. The skulls are both dolichocephalic and brachycephalic, and Prof. Fawcett compares the discovery with one made at Ofnet, near Munich. Mr. L. S. Palmer gives an account of the exploration of another cave, in which numerous Late Celtic objects were found. There are also brief reports of the lectures at the meetings. The society is to be congratulated on its first year's work, and will have the best wishes of all who are interested in the study of early man, but its publication could be improved by more careful editing and by a judicious selection of illustrations produced in better style.

We have just received from Dr. Hornaday, the director of the New York Zoological Park, a very interesting and important summary of the results of the five-year close season which was deemed necessary in 1912 for the replenishing of the herds of the fur seal of the Pribilof Islands. The results have been everything that the close-season advocates foretold. This conclusion is supported by figures. In 1912 there were 215,738 seals of all ages; in 1917 they had increased to 468,692, and by 1919 these numbers had risen to 530,237. This protection was devised for purely commercial ends, and the result is most emphatically satisfactory. This much is shown by the fact that at the St. Louis fur auction held on February 2, 1920, there were sold for the United States Government 9100 skins of fur seals which averaged 140.98 dollars per skin. Skins of the same quality in 1918 averaged no more than 46.34 dollars, but in 1919 the price had risen to 78.38 dollars. Thus the cost of this fur has risen by leaps and bounds, and it is anticipated that it will rise yet higher. "In the future," Dr. Hornaday remarks, "when all other bearers of good fur have been utterly exterminated—*as they soon will be*—the protected fur seal herds will produce . . . a really vast quantity of the finest fur in the world. It needs no stretch of prophecy to foretell the annual increment to the three nations (the United States, England, and Japan) who are now so sensibly preserving the fur seals of Alaska from killing at sea."

The Forestry Commission has made considerable and satisfactory progress both in the acquisition of land and in planting. Landowners have shown considerable sympathy with the objects of the Commission, and in several cases free gifts of land or long leases on specially favourable terms have been obtained. The area of land acquired in the United Kingdom is as follows:—England, 9177 acres; Wales, 6329; Scotland, 23,472; and Ireland, 4716. This excludes lands acquired by the Department of Agriculture for Ireland, administered by the Commission. In addition, without taking into account estates which are merely under consideration, negotiations are proceeding in respect of the following areas:—England, 24,973 acres; Wales, 7900; Scotland, 6956; and Ireland, 7000. During the season 1919–20 the area of land planted, most of which is showing satisfactory progress, was 850 acres in England, 535 in Scotland, and 200 in Ireland. To meet the heavy cost of transport and the shortage of plants, new nurseries are being set up in the more important planting areas. Every effort is being made to increase the supply of seed and of seedlings. In conjunction with the

Ministry of Labour, the Commission has established at Brockenhurst, New Forest, a school for the forestry training of disabled ex-Service men, to be opened this month. A similar school is open at Birnam, near Dunkeld, and a new school for forest apprentices has recently started at Beauly, Inverness-shire. Offers of land may be addressed to the offices of the Assistant Commissioners at 22 Grosvenor Gardens, London; 25 Drumsheugh Gardens, Edinburgh; or 6 Hume Street, Dublin. All inquiries should be addressed to the headquarters of the Commission at 22 Grosvenor Gardens, London.

THE passages in classical literature which have been quoted in support of the assertion that mother-right existed in ancient Italy are discussed in the June issue of *Folk-lore* by Mr. H. J. Rose. One of the most daring attempts to support this position is a review of the succession of the members of the great Iulio-Claudian house (Journal of the Royal Anthropological Institute, vol. xlv., 1915, pp. 317 *sqq.*). A number of these counted their descent from women, but of matrilinear descent proper we have not a trace. In Italy, as Mr. Rose remarks, "we cannot, whatever we may do in Greece, weave sociological fantasies from the relationships of the gods, for the excellent reason that the Italian *numina* have no families. If any better arguments remain I shall await their production with interest, but, frankly, I have small expectation of anything of the sort."

IN a discourse delivered on March 12 last before the Royal Institution Mr. W. W. Rouse Ball, of Trinity College, Cambridge, gave an instructive illustrated account of the art of weaving string figures, usually made by weaving on the fingers a loop of string about 6½–7 ft. long so as to produce a pleasing design, often supposed to suggest a familiar object either at rest or in motion. Mr. Ball remarks that "friends who have learned the rules tell me that in convalescence and during long journeys the amusement has helped to while away many a tedious hour; moreover, the figures are easy to weave, they have a history, and they are capable of many varieties. Thus even in England the game may prove well worth the time spent in learning to play it; and admittedly to the very few who travel among aborigines it may sometimes be of real service."

MR. A. L. ARMSTRONG describes, in the *Naturalist* for July, with an illustration, an interesting series of six bone implements picked up by Mr. W. F. Jackson on a ploughed field at Rocher Head, Bradfield, near Sheffield, in 1888. They were associated with a number of well-worked implements of flint, consisting of round and horseshoe scrapers, a "spoon" scraper, and several trimmed flakes and knives. The collection has recently been examined by Mr. Reginald Smith, of the British Museum, and Sir W. Boyd Dawkins, who agree in regarding them as belonging to the Late Neolithic or Early Bronze age. The bones are those of an unidentified mammalian long bone, small metatarsal bones of a horse, and one of a bird. The largest specimen seems to have been rubbed down to form a blade on one long edge for about half its length, and it may have been used in dressing skins. They may be the grave furniture of a tumulus now demolished, or may represent a hoard.

DR. WM. MCDOUGALL deals, in *Mind* (N.S., No. 115, July, 1920), with the problem of motives in the light of recent discussion. He reviews briefly his own point of view as expressed in "Social Psychology," the view, namely, that the instincts are the mainsprings or motives of all man's activity. He then considers, first, the criticism and suggested alterations of Prof. Woodworth, who in "Dynamic Psychology" maintains that, in addition to the instincts, other mechanisms, *e.g.* native capacities and acquired habits, have also driving force; and, secondly, those of Mr. Graham Wallas, who seeks to establish thought as an independent native capacity containing its own "drive." Dr. McDougall considers the various arguments brought forward by these critics, but fails to find them convincing, and himself brings further evidence in support of his original contention. The article is interesting and suggestive to all who, whether from the theoretical point of view of abstract thought or from that of the practical necessities of life, find themselves confronted with the difficult problems concerned with human motives.

IT is well known that the large European ground-beetle, *Calosoma sycophanta,* has been introduced into the eastern United States in order that it may prey upon caterpillars destructive to deciduous trees. Messrs. C. W. Collins and Clifford E. Hood have shown (*Journ. Agric. Research,* vol. xviii., No. 9, 1920) that an American tachinid fly, *Eubiomyia calosomae,* has formed the habit of laying eggs on the introduced beetle, within which the maggots feed.

WE have received No. 15 of the Journal of the East Africa and Uganda Natural History Society (November, 1919), which contains, among other interesting papers, a lecture on "The Geological History of the Rift Valley," delivered at Nairobi by Prof. J. W. Gregory, who narrates how on his journey of 1893 he had encamped on the unoccupied site of that now busy and important town. Dr. G. D. Hale Carpenter, in "Discursive Notes on the Fossorial Hymenoptera," summarises the results of his studies on the habits of tropical African Sphegidæ and Pompilidæ. This well-produced journal is, we notice, printed in England; so are the Annals of the Transvaal Museum, of which vol. vii., part 3 (June, 1920), comprises an important systematic entomological paper, "On the South African Notodontidæ," by Mr. A. J. T. Janse.

WHEN the surface of a lava-stream hardens, the lava below may continue to flow, forming a tube beneath the frozen crust. In some volcanic areas lava-tubes of small size are abundant, but those of great length are rare. In the Monthly Bulletin of the Hawaian Volcanic Observatory for March, 1920, Mr. S. Power describes and illustrates a tube near Kilauea of unusual size, known as Thurston's tube, 1494 ft. in length, with a maximum height and width of 20 ft. and 22 ft. respectively. It opens into the Kaluaiki pit crater, and is one of the channels by which the crater was drained shortly before the final disappearance of the lava-lake.

IN the last issue of the *Bollettino* of the Italian Seismological Society (vol. xxii., 1919, pp. 129–42) Dr. Agamennone describes a series of slight earthquakes at Frascati on November 6–7, 1909, of the same nature as true volcanic earthquakes, and yet originating on the flank of the extinct volcano of the Alban Hills. Small as is the area covered by these hills, Dr. Baratta distinguishes within it nine seismic zones, and the interest of the shocks described lies in the evidence which they offer of the continual migration of activity from one of these zones to another. The same number of the *Bollettino* contains Dr. G. Martinelli's catalogue of 568 earthquakes felt in Italy in 1917 (pp. 164–87). This takes the place of the very full pre-war reports which formerly occupied several hundred pages every year. While the completeness of the record does not seem to have suffered under war conditions, the catalogue in its restricted form has lost none of its usefulness for statistical purposes.

IN the latest part of the Transactions of the Nova Scotian Institute of Science (vol. xiv., part 4) Prof. John Cameron describes two remarkable human skulls from South Malekula, in the New Hebrides. They seem to have been elongated by distortion through bandaging in infancy, and they exhibit the enormous development of the frontal air sinuses which are such a marked feature of the Melanesian skull. These sinuses not only produce very prominent superciliary ridges, but also, with the large maxillary sinuses, cause a flattening of the upper and lower margins of the orbit, imparting to it a quadrangular shape. The various features are compared with those of the known fossil human skulls from Europe.

DURING the war the Geological Survey of Egypt had the opportunity of obtaining some of the interesting fossil vertebrates from the Lower Miocene estuarine deposits at Moghara, and it has just published a description of the collection in a "Contribution à l'Etude des Vertébrés Miocènes de l'Egypte," by M. R. Fourtau. The fish-remains, on which there are notes by M. F. Priem, are unimportant, but among the reptilian remains there are fine skulls of new species of Crocodilus and Tomistoma and of a new genus of gavials named Euthecodon. The primitive artiodactyl mammals of the family Anthracotheriidæ are represented as usual by many valuable fragments, and there are several teeth of Mastodon. Dinotherium is curiously absent, and M. Fourtau finds it difficult to explain why this genus should be found with Mastodon further south in Africa. One tooth of a hyæna is the sole fragment of a carnivore, but there are two portions of mandibles of anthropoid apes which are of great interest. The figures of these two fossils are very unsatisfactory, but according to the description one seems to represent a new genus related to Hylobates, while the other may belong to a species of Dryopithecus.

Two lecture-demonstrations to teachers of science in secondary schools on "The Study of Crystals in Schools," given by Mr. T. V. Barker at the University Museum, Oxford, on August 10–11, are published in a small pamphlet by the Holywell Press, Oxford. In the first lecture some of the salient facts of crystallography were experimentally demonstrated on growing crystals by means of the lantern-microscope, in order to illustrate the lecturer's view that some instruction about crystals should be given in all chemical lectures and laboratories. It was pointed out that almost every answer to an examination question on atomic-weight determinations will include a dissertation on Mitscherlich's discovery of isomorphism learnt from a text-book, yet probably neither the candidate nor even the writer of the text-book had ever seen isomorphous crystals, and still less proved them to be so by simple measurement. In the second lecture some simple crystal measurements were made of microscopic crystals on the screen and of larger crystals with a contact goniometer, and the properties of cleavage, hardness, and density were also demonstrated on a variety of crystallised substances. The object aimed at, of showing the possibility of introducing simple experiments on crystals into secondary-school natural science teaching as part of the physics and chemistry courses, and of demonstrating how interesting to young people such experiments could be made, appears to have been fully attained, and doubtless many of the teachers who attended will make some effort to respond in their own schools, and thus to give our possible future chemists an early idea of the great value of crystallography to the chemist.

A VALUABLE contribution to South African botany is a paper on new and interesting South African mosses by Mr. H. N. Dixon (Trans. Roy. Soc. South Africa, vol. viii., part 3, 1920), in which the results are given of the work on collections received from various districts during recent years. A considerable number of novelties are described, new records established for South Africa, and many of the genera or species critically examined.

IN the *Kew Bulletin* (No. 5, 1920) Dr. A. W. Hill gives some account of the Tresco Abbey Gardens, Scilly Isles, emphasising their claim to be regarded as an Imperial asset of great importance to the botanists of this country whose work concerns the botanical resources of the British Empire, and pointing out the desirability of arranging that systematic botanists should be given facilities for studying in the Gardens in the living condition the plants with which they have become familiar in the herbarium. In this favoured spot may be studied not only the principal features of the temperate regions of New Zealand and outlying islands, of Australia, and of South America, but also many of the characteristic features of the sub-tropical vegetation of South Africa. A great number of plants were introduced from Australia, New Zealand, and South Africa about the middle of last century by Mr. Augustus Smith, whose botanical enterprise and interest in gardening were continued by his nephew and heir, Thomas Algernon Dorrien-Smith, who succeeded to the lordship of the islands in 1872, and, since the death of Mr. Dorrien-Smith in 1918, by Major A. A. Dorrien-Smith. A feature of the collection is a large series of drawings of many of the interesting plants which have flowered in the Gardens. Dr. Hill refers to the possibility of growing New Zealand flax as a crop for the production of fibre in the Scilly Isles in co-operation with growers in Cornwall.

PROF. AUGUSTINE HENRY and Miss Margaret Flood contribute to the Proceedings of the Royal Irish Academy (vol. xxxv., B5, May, 1920) a botanical and sylvicultural account of the species of Douglas fir comprising the genus Pseudotsuga. The Douglas fir of North America is one of the great timber trees of the world, and includes two species, one the Pacific Coast, Oregon, or green Douglas fir (*Pseudotsuga Douglasii*), and the other the Rocky Mountains, Colorado, or blue Douglas fir (*P. glauca*). The Oregon species forms forests of immense trees on the Pacific Coast, and is now much cultivated in the British Isles, where its rapid growth and enormous yields of timber in a short term of years render it very valuable. The Colorado species throughout its home in the Rocky Mountains is much inferior in size and vigour, and is of little or no value in commercial afforestation in this country. The paper is mainly concerned with a comparative study of these two species, but is extended to include an account of the whole genus. In all, seven species have been distinguished; besides the two already mentioned, a third American species with very large cones occurs in Southern California, another in Japan, and there are also three very closely allied species, two native in Yunnan and one in Formosa. The microscopic structure of the leaves has been found to be a distinct and constant character in each species, evidently correlated with the special climate in which the tree is native. The oil obtained by distillation of the leaves of the Colorado and Oregon species respectively proves to be very distinct in chemical composition.

THE Meteorological Service of the Philippines has recently issued part iii. of the Report of the Weather Bureau for 1917. The report is entirely statistical, and contains the observations made at the secondary stations during the year. All the results are carefully collated and examined at the Central Observatory under the supervision of the director, the Rev. José Algué, S.J., and the tables fill 360 pages, closely printed. The stations extend from latitude 6°–20° N. and longitude 118°–144° E. Observations at first- and second-class stations are for each four hours, six daily, for most elements, and annual summaries are given for these stations at the end of the volume. Observations at third-class and rain stations are made twice daily. In all cases the results are separated into months, and the means and totals given. The stations in all number fifty-four. For world-meteorology, and especially for aviation, the Meteorological Service of the Philippines is doing work of a very high order. Data are given for atmospheric pressure, air temperature, relative humidity, rain, wind direction and movement, and cloud form and direction. A rough examination of the wind directions and the movement of the clouds is of considerable interest. The movement of wind is greater, and calms are far less numerous, during the day than at night. Easterly and north-easterly winds prevail generally during the winter, and southerly and westerly winds during the summer. There is a distinct range of wind in the twenty-four hours. Upper and lower cloud observations are given twice daily; the direction of upper clouds is less regularly entered than that of lower, and the latter show commonly a veering of four points or more in comparison with the surface wind at the corresponding time.

ONE of the Meteorological Office publications, a section of the *Geophysical Journal*, gives daily values of certain elements at the Meteorological Office observatories. The data, which are not all observed every day, include air pressure, temperature and humidity, wind direction and velocity, sunshine and rain, cloud amount and weather, solar radiation and grass minimum, magnetic elements, earth temperature, atmospheric electricity, earthquakes and aurora, nephoscope observations, and pilot-balloon soundings. The normals are not of equal value, as we find at Kew Observatory 45, 35, 30, and 12 years for different elements, and at St. Louis (Jersey) 26, 25, 23, 22, and 16 years; while of the four wind observatories three give the daily maximum gust, while the fourth can give only the velocity during the windiest hour. There are other points of considerable dissimilarity between the different observatories. Eskdalemuir is, of course, of recent foundation, but it does not seem necessary to quote five-year normals in the ninth year, and it would be better to adopt fresh normals every year until at least the tenth in the case of a new observatory. The South Kensington normals are for a seven-year period, so that the quinquennium is obviously not insisted upon. The information about the height of the anemometer head above the cups at Holyhead appears to be conflicting, figures of 4·2 m., 6·1 m., and 4·0 m. being all derivable from the headings.

THE benefits accruing from a considered system of engineering standardisation have met with but a tardy recognition in Australia. It was not until the necessities of war pressed the subject to the foreground that any tangible steps were taken towards introducing a systematic scheme for engineering standardisation in the Commonwealth. The Institute of Science and Industry has given considerable attention to the matter, and after informing itself fully as to what has been done in other countries, and consulting various experts in Australia, it has put forward the outline of a scheme for the creation of an Australian Engineering Standards Association. This scheme has now been agreed to by the engineering societies, and a recommendation made to the Commonwealth Government for the establishment of a Standards Association. In the meantime, the Institute of Science and Industry has taken a further step and issued an Australian Standard Specification for Structural Steel, with appendices as to the forms of standard tensile test-pieces and data as to standard sections, sizes, weights, and sectional areas.